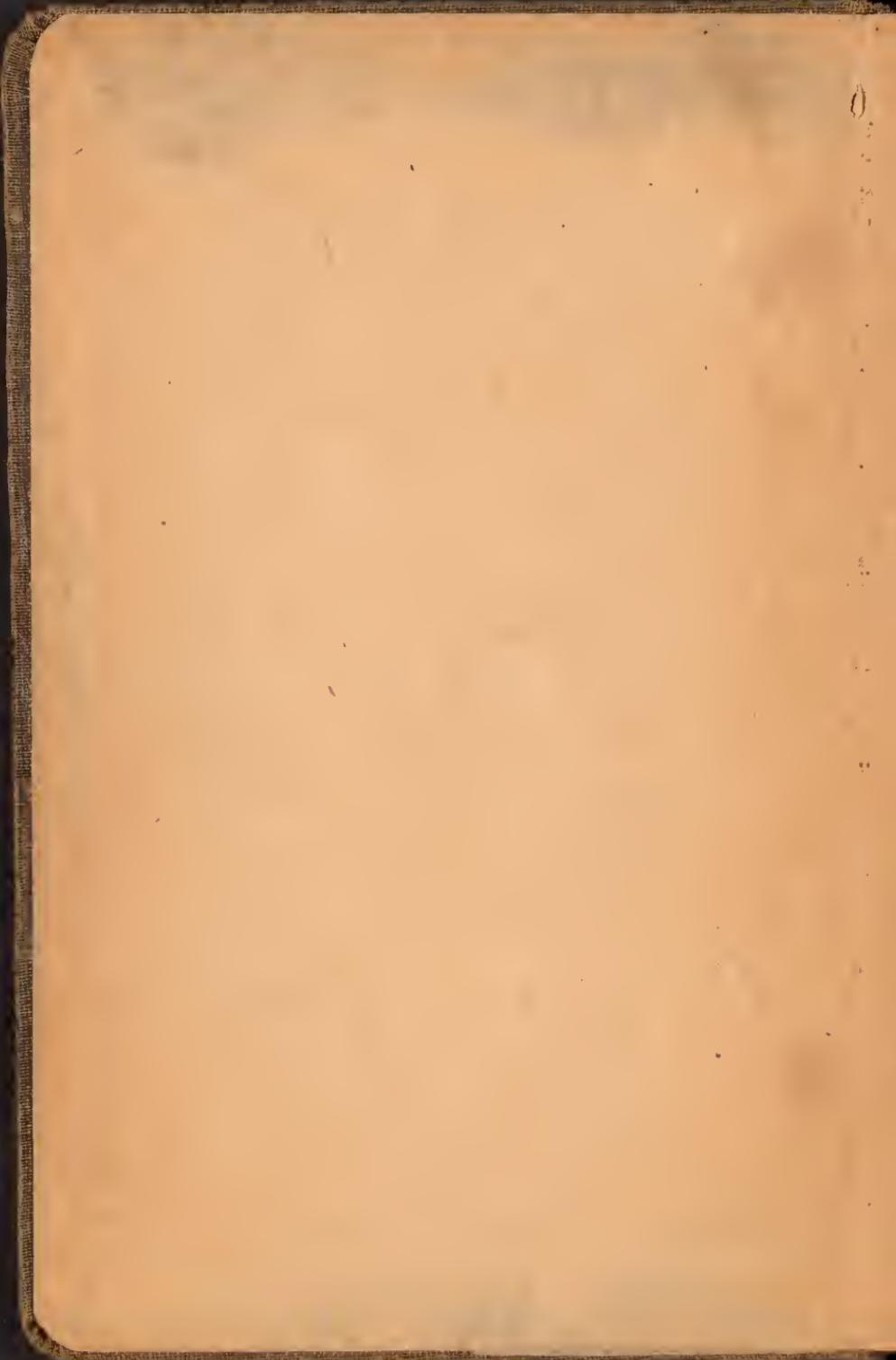
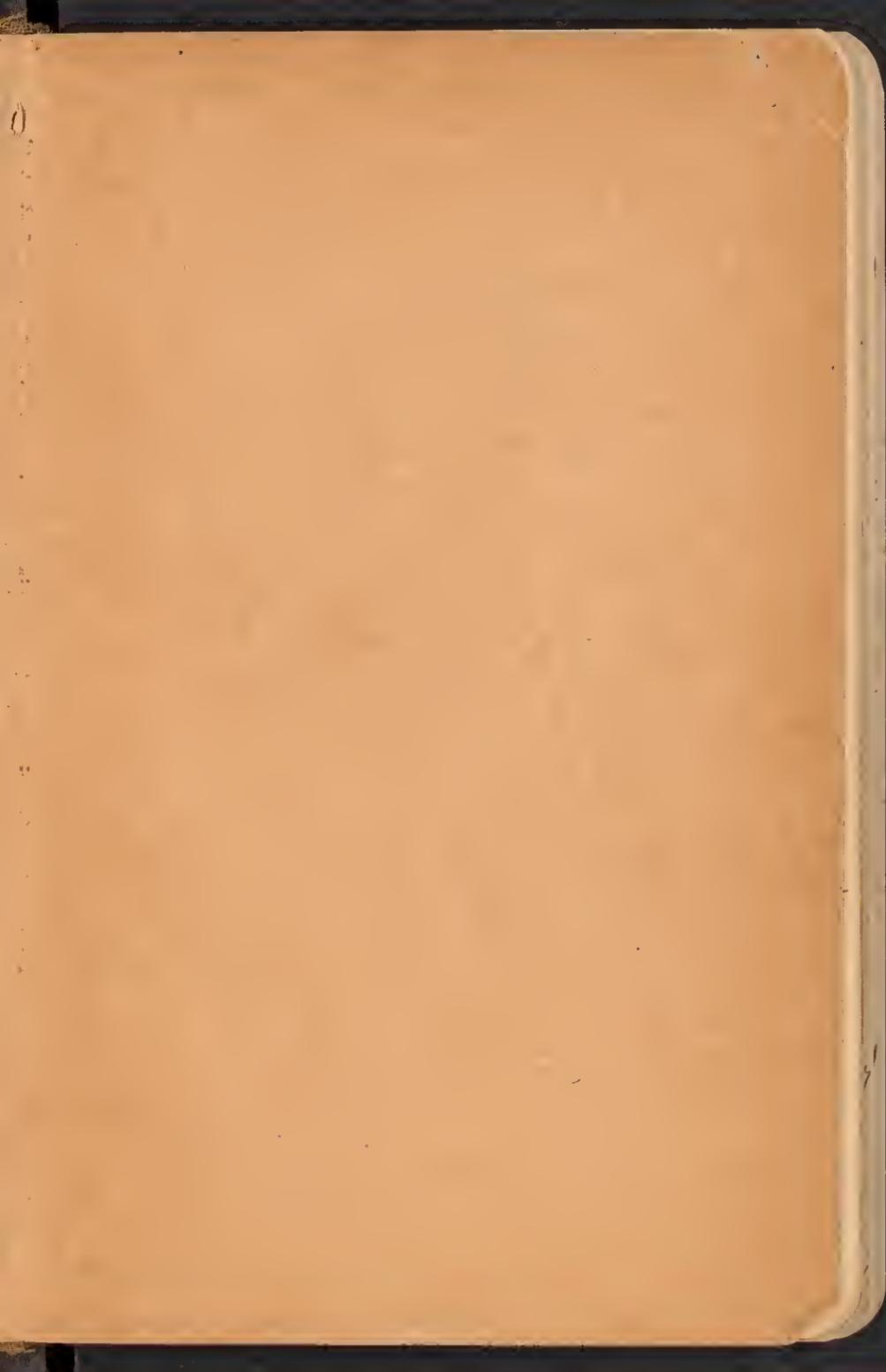


Record







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Scientific Journal of a Trip to  
Costa Rica

in 1929-30

by

Carroll William Dodge

Volume One

August 24 to April 19



Aug 24 Sailed from New York and arrived in  
Simeon Sept 5, 1929.

Sept 6-22 In San José, getting family  
settled, presenting letters of introduction  
meeting Thomas at the boat. etc. Short trips  
to Parque Bolívar and one to La Sabana  
exploring road from San José Golf Club to  
Río María Aguilar and the next road west  
south.

Sept 23 Took morning train to Turrialba and  
motor to Pejivalle Farm where we arrived in  
time for lunch. Railroad ends at office and  
beneficio shortly after passing up gorge past  
mouth of Río Gato. The dwellings are a little  
further up Río Pejivalle at higher elevation about  
650 m.

After usual shower collected in potrero  
back of village behind the beneficio to altitude  
of 750 m. 2 good sedge smuts in quantity.

Sept. 24 In forenoon went up right bank  
of Río Cacao following tramline to end and  
then up a slightly cleared foot trail to about  
780 m where trail becomes indistinct. Most

collections between end of tramline and end of trail except grass smut and two Meliokas also a few flowering plants with flowers conspicuous at this season. Many fungi found only as single individuals, most lichens above reach. A large white gelatinous fungus with meruliod hymenium was preserved in alcohol, also a small collybia or mycena. Rio Cacao is the first tributary of Rio Pejivalle above confluence with Rio Gato and contains a pipe line to supply water to the beneficio.

Sept 25 Followed valley of Rio Pejivalle to end of tramline at the next tributary Rio Humo above Rio Cacao. Just beyond and above this point Rio Humo divides into three more or less equal branches of which we ascended the middle one along a banana trail. We wound up thru the jungle on the northern bank then crossed it and followed the southern ~~banana~~ bank to the upper ~~branch~~ banana plantation,

which has only recently been cleared, reaching about 800 m. More fungi but very few lichens also miscellaneous insects.

Sept. 26. Took Taqui Taqui tram line to end (south bank of Rio Pejivalle) then took a faint trail which finally descends to the river and follows the bank along the river bed at low water up river for some distance. The faint trail then leaves the river at a large boulder where farther progress along the bed is impossible and ascends the hill at the corner where the river bends sharply southeast. We nearly reached the top but at 820 m. we turned back owing to the lateness of the hour. Typical rain forest, fairly open going much of the way.

Sept. 27 Inspected coffee plantation, looked over and photographed cochinilla infestation also spent time photographing various stages of a disease with symptoms something

like the Chasparría disease but not caused by Cercospora. Went on down the track into the gorge of the Rio Pejivalle where the slides occur. Here we got several collections of lichens from a recently felled tree. Went back to the farm house overhauled presses, dried driers and ventilators in the sun. Weather sunny all day, very unusual at this time of year.

Should plan another trip to explore El gato and its tributaries.

Sept. 28. Collected some diseased specimens of coffee in the morning returned to Turnalba on the 8<sup>30</sup>~~30~~ train thence to San José. Worked over collections

Sept. 30 Spent the day going over diseased coffee material see Notebook on coffee diseases)

Oct, 1, 3 Worked at Werckle's collections of lichens in the Museo Nacional

Oct. 2 worked at collections at home  
 while Bertha visited in Santiago de  
 Cartago to arrange for our visit later  
 Oct 4, 5 worked in Botanical Laboratory  
 of Escuela Nacional de Agricultura  
 on coffee diseases and visited the  
 experimental plots. Oct 4. Thomas collected  
 about the school and Oct 5 about the Dabana

October 6. Thomas not feeling well. I went to  
 Alajuela on the morning train where I was  
 met by Juvenal Valerio who took me to his  
 home where I met his younger brother. We took  
 the (usual muddy) cart road to Desamparados  
 de Alajuela <sup>varying in altitude from 920-980 m.</sup>

Part of the way the road follows the Rio  
 Ciruela where some of our best collecting  
 occurred. We returned by the same route  
 to an elaborate Costa Rican lunch.

Chicken soup with rice & much fat

Fried chicken garnished with green peas - Rice  
 Roast loin of pork with potato chips

Omelette with green peas

Black beans + rice

Native macaroni and tomato sauce

Oranges

Coffee

White wine.

After lunch chatted with Valerio until train time. Various fungi and lichens painted a new Hypholoma. Found abundant Pleurotus. Introduced to guayaba fruit.

Oct. 7. Took care of yesterdays specimens wrote letters and prepared to go to Santiago

Oct 8. Took 7 AM train for Santiago de Cartago, were met by don Ricardo Chavarria Flores and escorted to the farm house about 20 m above the station or 1160 m. The forenoon was divided between coffee + banana finca just below the house belonging to Carlos Pedras and the potrero of don Ricardo - After the

muddy rain during which I cared for the morning's collections, I retraced my steps collecting bark lichens. At 5 PM barometer registered 1180 m ~~in~~ hill in potrero east of house.

Oct 9. Went down across banana & RR tracks & circled potrero at 1100 m, where most of lichens were collected, then down across don Ricardo's banana nearly to Rio Birris at 920 m. Collected most of insects at lower altitude. Returned for lunch.

Oct 10. Indigestion all day. Bertha & Anne accompanied Mr & Mrs Chavarria to don Carlos Puedras home, thence to the trapiche on the west river terrace of the Rio Birris at about 1300 m. Bertha collected some miscellaneous lichens & fungi, which I cared for that night.

Oct 11. Left the house about 8 AM by horseback and joined don Carlos Puedra & his sister

Mary for a trip to their lecheria Coliblanco  
After crossing Rio Birris we climbed the  
east terrace thru a rich fog belt to  
the table land striking a road leading  
directly into Capelladas in a northerly  
direction. Here we made a right angled  
turn to the east thru the main street  
(the turn west leads thru and  
Cervantes to Cartago) Continuing eastward  
we passed thru Santa Teresa de Capelladas  
then three rivers, the last <sup>two</sup> near a sawmill  
just beyond and north of the sawmill  
we entered the lower potrero of Coliblanco  
at about 1600 m we crossed the potrero in  
a northerly direction and started a steep  
zigzag climb to the farmhouse + sheds  
at 1980 m. on what I judge to be the southern  
slope of Turrialba. We lunched almost  
as soon as we arrived. Then I botanized  
for about two hours on fallen mossy logs  
and tree trunks near and just below the  
farm house. We were between 5 and 6 hours

in the saddle and reached the Chavarria Finca at dusk. No rain but heavy mists most of the time about 1600 m.

Oct 12 Stephen (Thomas) arrived this morning and put up porch evening collections of insects <sup>Oct 9, 10</sup> while I put up plants of Oct 11. Bright red *Hygrophorus*. ~~Hyg.~~ *Cora pavonia* in large areas often 1 sq meter covered recently denuded areas along roadside very rarely among mosses on rocks or trees. After specimens cured for went up road toward Pedres ~~sa~~ - nia.

Oct 13 Rested overhauled presses and took pictures. Identified some lichens

Oct 14 Spent the day on potrero below Angelina siding in swamp and among Indian graves next the banana. Mr Chavarria had two peons open one grave. A few fragments of a rather crude unornamented pottery were found.

The ladies & Mr Chavarria joined us with lunch which we ate in the shade of the guayabos near the opened grave. The sight of the ladies as they rode up the path in the banana on their prancing mounts contrasted strongly with the phlegmatic surlooted patience of Don Ricardo's mule. The lunch was ample with abundance of fruit and chocolate milk in tall wine bottles. The shiny <sup>green</sup> leaved guayabos with their smooth bark and the the tomentose gray leaved melastomes with their bark covered with gray crustose lichens and trunks & limbs hung with large masses of <sup>or</sup> *Tillandsia usneoides*, *Usnea longissima*? One plant over 2 m. long, gave a picturesque tropical setting suitable for the hand of a great tapestry designer. The trim feminine riding costumes and Mrs C's straight bobbed hair would

seem to belong to a tall and graceful page rather than to the ~~the~~ elaborate coiffures and ample skirts of the grand dame of the manor. The juxtaposition of a picnic party and the open grave would make a striking contrast. The peons were dark skinned Spanish-Indian crosses, with their machetes, bare feet, sombreros and smiling faces would contrast strongly with the slender feminine Nordic page who was too interested in the operations to eat. "Alas! poor Youck" with variations.

Oct 15. Crossed banana back of RR station descended along a very sharp ridge running at nearly ~~so far as~~ right angle to Rio Reventazon when at about 1000 m turned west and descended into canon of Reventazon to about 950 m when we were forced to return on account of lateness of hour, full vascula

and empty stomachs. Spent afternoon in caring for specimens. Got a raceme of *Iluvia deoro* nearly 2 meters long.

Oct 16, Rode to farm of Dr. Carlos Piedra where <sup>we</sup> left our horses. We crossed R. Biris and botanized the side hill between the river and the highway to Capelladas keeping along private road used by Piedras in going to Capelladas. Most of the area covered seems to be in a fog belt because all trees heavily clothed with bryophytes and lichens. Fuchs very well developed and many fruiting. 1220-1340m.

Oct 17. Retraced route of October 16, tying our horses and eating lunch at foot of steep zigzag trail about 1620m. It began to rain but we botanized for two hours up zigzag trail toward Colihueco farm houses <sup>to 1910m</sup> then returned arriving about 5PM. A number of interesting

collections mostly phaenogams + lichens. The rain made the road very slippery coming back and two sudden showers added to our discomfort.

Oct 18 Spent the forenoon in changing driers, putting up yesterday's collections. Very hard rain all the afternoon studied some of lichen collections.

Oct 19 Returned to San José, got mail and answered letters

Oct 20 Church in morning, sermon on the cow as a symbol of St. Luke. transmutation of grass to milk [Freudianism]

In afternoon attended children's party at Iglesias'. Met widow of Presidente Rodriguez a 75 and widow Presidente Iglesias grandmother + mother of don Bernardo Iglesias.

Oct 21. Business details in morning  
Afternoon identified specimens as far  
as available literature permitted.

Oct 22-23 Continued work at speci-  
mens.

Oct 24 Worked at Museo Nacional

Oct 25 Took morning train at 7 AM  
for Tres Ríos followed road beside  
plaza east past south side of church  
and took road leading up valley in  
La Carpintera 30 E of S. Followed this  
road to about 1500' m when rain and  
lateness of hour forced our return.  
Bertha went with us <sup>at 1:15 PM</sup> Returned and  
spent rest of day in care of specimens  
Found loba and other unusual things.

Oct 26 Worked at specimens purchased  
saddlebags for 38¢ and took the 5 PM  
train for Alajuela

Oct 27. Started north from Alajuela at 7AM went north past Itiquis to San Isidro de Alajuela turning right just above school followed carroad to the Alajuela reservoir and then had lunch there. Began to rain on the return and was soaked to the skin. Many interesting finds. Highest elevation 1300 m wood pile 980 m.

Oct 28-29 Worked at specimens all day. Oct 29 sent baggage to Iglesias' farm on north west slope of Irazu.

Don Bernardo Iglesias y señora dined with us in evening.

Oct 30. Took the 8PM train to Alajuela and visited schools. We were met by Don Julio Solera the principal who showed us the beautiful building with patio swimming pool and gymnasium. Everything except chemical laboratory adequately equipped and \$12,000 worth of equipment ordered for that from

Germany. Next we visited the hospital the cleanest I have ever seen. The equipment appeared adequate to my inexperienced eye. We returned and visited Valerio's second year class on *Marchantia* for which I cut sections.

We were tendered a luncheon by the faculty prepared by the seniors (class E) in home economics.

Hors d'oeuvres, salad, arroz con pollo, frijoles blancos and dulces, with fruit juice and coffee.

After lunch we went to visit the primary schools. Equipment was adequate and apparently more teachers per pupil. The Escuela Republica de Guatemala was especially fine. The quetzal, bandera and biblioteca presented by the Rep. de Guatemala were displayed also the orthophonic phonograph.

purchased by the proceeds of products from the school garden cultivated by the boys. Bertha was presented with a <sup>large</sup> bouquet of violets. We returned to the Instituto just as it was beginning to rain.

We visited Valerio's other class then were treated to a basket ball game between varsity and scrubs. We occupied seats as guests of honor and I opened the game with the first toss. The game was exciting and fast but only one fellow knocked out for the rest of the quarter. Sportsmanship was very good. Following the game the players jumped into the swimming pool and did fancy stunts as they cooled off.

Then we were honored by a special school ball which lasted until we were forced to leave in the 4PM bus.

The school system seems very good entering at seven for six primary grades, then five years at the Institutos covering our secondary curriculum and one or perhaps two years of college. Isn't this about the same as the underlying idea of our hiatus at the end of the freshman year and aren't the students better off for the extra year in prep. Students spend 8 hrs per diem in school and 2-3 hrs at home in study. Discipline is strict aided by compulsory wearing of school uniform [white coat with brass buttons and military cap and dark blue or black trousers, girls white middies navy blue ties and plaited short skirts] except Saturday p.m. and Sundays. Students forbidden to visit saloons billiard rooms or casas de tolerancia and to smoke. Violation followed by prompt expulsion. Stature much smaller than students of similar age in US but look healthy & happy.

Puberty apparently late.

System has overemphasis on examinations and too rigid. All students must pass all subjects. Under such conditions memory usually developed at expense of intellect. Corps of teachers young sympathetic and enthusiastic, some at least well trained, principal has had at least 3 years experience teaching in University of Kansas before returning to Costa Rica.

Students mostly go on to schools in <sup>Pharmacy or Law School, Agriculture</sup> Europe or US or enter business. Girls go to normal school to Law School or are married. Ages range 19-25.

Alajuela is cattle + sugar market of country, citizens all middle class no poverty stricken or very rich.

Population is growing a little faster than school buildings + equipment but situation is not yet acute.

Oct 31, 1929. Intended to return to La Carpinteria but missed the train. Took street by station south to end, 1 block north, thru potreros then south coming out on Calle 17 & road to Desamparados which I we followed to Desamparados. Then we started southwest hoping to reach some of the wooded ravines of Escasur. We passed two small villages and tried to reach a white church with two towers across the river & above us. Missed road and after wandering thru lanes potreros and cafetales kept the general direction north to northwest thru lanes finally reaching Alajuelita before finding a road. Took main road in from Alajuela arriving at 12 ave & 12 st west.

Comparatively little collecting but a few good things. Altitude approximately that of Danjose.

Nov. 1. Took the morning train to Tres Ríos and followed road past south side of plaza & church turning right after

passing third bridge keeping up Carpintera in a generally SSE direction. At about 146 m we took to the southwest potrero at a fork a short distance before a group of *Erythrina* which were losing their leaves and ascended the hill to about 1670 m then entered woods circling east & north around the head of the ravine to about 1700 m where we came into a clearing above a house apparently the end of the road. We followed the road back to Tres Ríos practically that followed in trip of Oct 25.

Saturday Nov. 2. Most of day spent in taking care of specimens catching up correspondence, a trip to bank market & book stores and preparations for a long trip up Irazu.

Nov. 3. Started a little after 8 AM with Mr Iglesias & his brother Manuel? for San Isidro, <sup>Coronado</sup> via Guadalupe. At San Isidro we witnessed a solemn procession of the Virgen. After reviewing it we arrived at a stable where horses awaited us. Mr. Iglesias' brother went to his farm and we started up the long gentle slope. After a short ride we turned straight down across a brook and then up the slope to San Miguel, then past the lower Rancho Redondo <sup>of Dr. Ross</sup> and up to the Quayabillo homestead & dairy of don Bernardo Iglesias R. In the afternoon we inspected barn & meadows and recent flood damage with don Bernardo but took no specimens. Rainy house 2252 m.

Nov. 4. Slept late woke about 7 sun bright, house 2150 m. Climbed up thru potreros and followed road <sup>one of the</sup> up to Lecheria.

Cabaçad. Laco

of Dr. don Alfredo Volio, entering his potreros  
a short distance to a height of 2350m  
Returned a little after 11 AM and worked  
the rest of the day until 7<sup>30</sup> PM without  
specimens.

Nov 5. Up at 6. Took the road toward  
the next farm <sup>Chino</sup> collecting mostly in the  
potreros below the road until the road  
reaches the next <sup>fence</sup> farm and then above  
east of road until we ~~were~~ reached a  
group of fresh charcoal pits at 2400m  
House read 2150 when we started, sky  
cloudy started to rain about 10 AM. Rained  
hard most of rest of day. House 2200m  
at 6 PM. Worked at specimens all rest  
of daylight, no time for water colors.  
Bed at 9<sup>30</sup>

Nov 6 Up at 7 after breakfast went south  
along road toward San Miguel into the  
next potrero where we filled both vascula  
by 10 AM or a little later. Many good things,

in quantity for the first time. We spent the rest of the day caring for specimens without finishing agarics and ~~had~~ <sup>have</sup> all driers in use. Rained hard and roof leaks badly so problem of driers is acute. Barometer house 2170 at 8 am Highest point <sup>reached</sup> in potrero 2180. house at 6 PM 2200

Nov. 7. Barometer at house 8 AM 2180 10<sup>30</sup> 2220; 4<sup>30</sup> 2220. Since presses were full and Stephen tired, left him to change driers while I collected near road in south potreros and just over the fence on the next farm. Got several pyrenomyctes and additional material of some species. Barometer readings varied between 2180 & 2220 m. Spent rest of day in caring for specimens. Began to rain about 2<sup>30</sup>

Nov 8 Barometer at house 11:30 AM 22.00; at 4:30  
 22.60. Took road to upper farms <sup>Clinio</sup> began  
 to collect at 1:30 and passed thru  
 first farm <sup>Clinio</sup> ~~El Chorro~~ <sup>Hacia</sup> and into second  
 as far as brook at 2650 m. Began to rain  
 and as hour was late returned about 11:20  
 Got several interesting lichens & agarics  
 Had everything in press at 4:30 PM.  
 Drizzles & brief intervals of sunshine  
 no rain hard enough to make roof leak  
 heavy fog much of time. Road runs  
 approximately East & West most of time

Nov. 9. Barometer at house 7 AM 22.20, at 12 M  
 22.00 at 6 PM 22.20. Crossed main brook  
 and ploughed field and up in a northerly  
 direction to top of ridge dividing from  
 next brook system <sup>Ranchos Redondo</sup>. Followed this easterly  
 through several potreros following  
 abandoned road <sup>to about 2600 m.</sup> then southerly across  
 burned area to a recently deserted cabin  
 on bank of first brook north of main stream  
 at this point. Thence over the hill and

down thru bambusoid grass thicket to main brook, up a southerly branch and over a ~~height~~ <sup>climb</sup> of land around head of next west southern tributary striking the main road thru the farms at the point at which we turned back yesterday. This point read 2620 m. instead of 2650 m. Returned to house at 12 m. Pedometer registered 6 miles.

Spent remainder of day in caring for specimens. Ridge just after we turned eastward had several Russulae and other quite northern genera of Agaricaceae.

Nov 10 Sunday a beautiful day, finished notes on agarics & Stephen changed the presses. otherwise a day of rest.

Nov 11. Crossed ravines southwest of house intending to climb ridge opposite from its

Ranchos Redondo  
southeastern slope but found such rich  
collecting on its southeastern spur that we  
spent the rest of the morning there. Collected  
a light brown Amanita near a phalloides  
but it fell to the floor & Stephen stepped on  
it preventing further studies. Many Russulæ  
Clavaria tremelloidæ, Gasteria or  
Gymnomyces & Melanogaster a tiny Boletus  
a large Craterellus etc. Spent afternoon in  
study and evening on letters for tomorrow's mail  
Don Victor brought up our mail this noon  
and Stephen seems happier.

Nov 12. 6 AM barometer 2220 6 PM - 2250  
Finished notes on fleshy fungi and  
many other small jobs but did not go  
afiel today Weather was beautiful.  
Victor <sup>baby born</sup> Senora Blanco is sick, so we may not  
go to Santa Rosa tomorrow

Nov 13 7 AM barometer 2220. Went out to

Alfredo V. S.

highway followed up to next house thence  
around hill thru potrero to house then  
over hill down across valley and up  
hill to highway which we followed  
upward easterly to house at about 2560  
then down across valley to house +  
highway opposite and above house  
of Alto de Cabeza de Vaca. Thence down  
through forest past charcoal pits  
and out to ~~the~~ road down from Alto Chino  
de Cabeza de Vaca thence to house  
country too open for good collecting  
but a few good things including a  
Pholiota or *lyp* podonotrum in quantity.  
afternoon spent on water colors.

Nov 14 Barometer 2220 at 7 AM

Went with don Victor Blancs the over  
seer to Finca Sta Rosa. The road follows  
the route already familiar up thru Chino  
(El Alto de Cabeza de Vaca) and up  
the steep hill visible at the head of  
the valley just before the continental

divide is crossed a road leads sharply right across to Cartago and a little beyond a small bridle path leads steeply up to finca of Alfredo Volis. The continental divide is crossed at 2800 uncorrected (2770 cov. variation of instrument not weather). Beyond the divide road continues more or less easterly & northerly down headwaters of Rio Ducto to Finca Santa Rosa. The descent follows a shoulder between two streams, in some places very narrow in one place not over 10 ft wide with landslides eachway. The last stretch is good corduroy, the first I have seen here. While don Victor chatted with the farmer, I followed the road toward Dan Isidro thru the first hill where I found some *Polyporus cinnamomeus* and a curious *Cladoniaceous* lichen whose genus I did not recognize <sup>*Heteromycetes*</sup>. The road which crossed the brook

just before leaving the corduroy at the mill by the penstock leads steeply up to the potrero de Santa Rosa. Mist was very thick so we did not go up and after a mug of coffee we returned. The journey takes two to  $2\frac{1}{2}$  hrs each way, got back about one and after lunch took field notes & painted until dark. In evening noted a complete ring around the moon with all colors red inside violet outside about  $3-4^{\circ}$  radius from moon. Clouds in vicinity of moon by light bright enough to cast strong clear shadow & rest of sky clear & starlight

Nov 15. Rainy & misty most of the day. Took care of specimens, sorted and put in naphthalene most of morning. Afternoon went alone to south potrero and picked up several interesting things

Nov. 16 crossed main brook of valley and followed general route of Nov 9 to top of ridge keeping lower along the <sup>second</sup> tributary somewhat east of previous trip. Followed road along top of ridge westerly down to near crossing of main brook then up thru meadow to house. Several interesting finds. Spent afternoon as usual with field notes & water colors. Had headache most of day. 2500 m highest point barometer house 7 AM 2220 at 5 PM 2250 m. Cloudy & misty most of morning, fair in afternoon.

Nov 17 went to San Isidro Coronado to meet Bertha saw Cora Pavonia at 1800 m. only time on trip. Barometer at house at 6 PM. 2440.

Nov 18 Crossed brook system below house then followed road up main branch into valley behind hill visited Nov. 9 + 16 Rancho Redondo

and shortly before ~~reaching~~ reaching farmhouse in the valley climbed to the top of the hill to the north about 2600 m. By the time we had reached the top the mist prevented all distant views. Dense thickets of *canjuela* <sup>*Chusquea*</sup> on the northern slope prevent a good view even if the mists were not present. Descended to the southwestward into the first deep ravine and when about half way down over the shoulder and down somewhat to the east of the farmhouse across the potrero back to the road and home house 2200 m at 7 AM + 12 m a *Saterneia* with only two columns at 2600 m also the black spored analog <sup>+ a large *Psycholopha*</sup> of *Amanita* a little below. Bertha went with us and found the *Saterneia*

Nov. 19. Climbed up thru upper potrero of lower farm to the road along the edge of the scarp on the southern edge of Mr Iglesias' holdings to about 2700 m then dropped along a bridle path to the junction with the road to Sta Rosa just above the <sup>El Alto de Cabeza de Vaca</sup> gate of the ~~Jaayabillios~~ potrero.

Bertha took several pictures of general interest. Not very strenuous but Stephen tired out and went to bed as soon as he finished presses and Spanish. Fewer collections but some of great interest.

Nov. 20. Followed road toward Sta Rosa as far as the top of the continental divide then up hill to south to the second hill <sup>Cabeza de Vaca</sup> toward Irasu then down the second ridge from the great northwestern scarp to the end at the confluence of two streams then followed road northerly & westerly past farmhouse and up hill until road turns south then across two shallow valleys to road along the great scarp <sup>Petes?</sup>

at the frieze of faces carved in the walls of the road. Then down the road intending to cut down thru the canajuela thicket a short distance to charcoal pits as on Nov. 5 but kept a little too far east dropping very steeply down into ravine and so out across potreros of <sup>Chino</sup> Cabega de Vacas and back to the main farm house. I took a very strenuous climb up rock slide beside of small stream in <sup>El Alto de Cabega de Vacas</sup> Guayabitos potrero above Sta Rosa road about 30 m. got beautiful red lily and some interesting agarics for my pains. The logs & stubs of upper potreros are so dry that not much chance for fungi. Highest point reached 2850 m. House 2200<sup>m</sup> at 8 AM 2240 at 6 PM.

Nov 21. Went into south potrero and down across brook to lower road which we followed down to about this point on Nov. 11 then followed the road down to about 2040 m Ranchos Redondos finding many small agarics hypogaei and Isarias in the mossy banks. We returned partway along the road then climbed one of the hills across the brook arriving in western corner of the southern potrero. Rained most of the time. Barometer at 2200 m at 8 AM and 2240 m at 11:30

Nov 22. Returned to San José in the morning

Nov 23 - Dec 3 Spent time on collections writing up notes, house hunting etc. Stephen in bed 1 1/2 days with "flu" Anna & Bertha with bad colds. Came to Siquirres Dec 3. Rained hard all PM. spent time in getting acquainted.

Dec. 4 Accompanied by Mr. Catt we ascended southeast bank of 1st tributary of Rio Siquirres which enters from southeast just above village <sup>140 m.</sup> After a short distance we took to bed of tributary then climbed northern bank and went up between this tributary + Rio Siquirres soon striking a trail which we followed to 240 m when the lateness of the hour forced our return. We got back about 11 AM. after lunch worked until six at specimens. Very hard rain during lunch, heavy wind most of afternoon.

Dec. 5. Followed trail by which we returned yesterday as far as 400 m. House read 120 m this morning. The trail leads in a southerly or southwesterly direction more or less following Rio Siquirres on its eastern bank. The climb is quite steep after leaving the ~~petree~~ potrero then follows a narrow ridge for a long way. A slender delicately branched

Xylaria on fallen shells of the fruit of *Apeiba aspera*? Aubl. which fruit looks remarkably like some echinoderms.

Dec. 6 Explored trail of two previous days for  $4\frac{3}{4}$  miles reaching 500 m. Very few specimens taken, but came upon a very curious aroid with much divided leaf probably *Dracontium*. The trail after passing headwaters of east branch of Rio Siquirres swings eastward, toward <sup>Rio</sup> Pacuare and continues to climb slowly.

Dec 7. Went thru Siquirres village and followed road along west side of Rio Siquirres for  $4\frac{3}{4}$  miles to an elevation of 200 m. Corrected barometer which read 140 m to 70 m in accordance with recorded elevation at the station recent readings probably 70 m too high. Road winds along a little above banks of

Rio Diquires with small cacao, banana + Manihot patches. Muddy but pleasant vistas + very gentle slopes. got a few interesting things mostly on cacao + shade

Dec 8 Took tram line about 1 mile west of Diquires which runs northeasterly thru Isla de los Chanchos across the Indiana line to Barnstorf. We spent a very enjoyable day with the Danish overseer Mr Stubbe? In the afternoon we took a tram to the forest on this farm. a very short trip yielded several interesting species.

Dec. 9. Took care of collections in morning and collected Termites etc in coconut grove east of laboratory until noon Rev Thornton called immediately after lunch + Mr Kress soon afterwards. After he left we went swimming.

Dec 10. Went down main line of R.R. to bridge over Rio Pacuare. On west bank took an inconspicuous mule trail in a southerly direction along + high above Rio Pacuare to abandoned patch of bananas + cacao, then following river gravels up as far as cliffs. Here we struck up the hillside until we found an indistinct trail to tiny poorly kept clearing of Sta Rita patch of bananas + sugar cane then up hillside + back to Rose Hill banana + cacao patch near where trail enters it. Much machete work needed and accomplished by Thomas + Catt. Several interesting things. Thomas acquired live tarantula [antelope in Jamaican dialect] and two very dead snakes.

Dec 11. Finished taking care of yesterdays collections and botanized potrero of Indiana. In morning took care of specimens in afternoon.

Dec 12. Took tram line west of Siquirres north thru Siquirres North then followed trail west and north thru part of Livingston first thru cassava patch, then cacao out into potrero. We descended to channel between Reventazon + Siquirres and followed it back and up the east bank of Reventazon to R.R. bridge thence across to La Junta and up old line to cut at 39.5 miles where we found a few things. Calibrated pedometer on way back. Distances may be about 10-15% too large. Afternoon with specimens as usual.

Dec 13. Took freight at 5:30 for the Tunnels Camp at southern entrance of Tunnel. Followed road toward finca of Arturo Volio now managed

by Gonzalo Volio for some distance westerly until we saw pond on southern side of road. This pond has wide floating grassy margin where we collected many flowering plants

Then we returned to the much larger lake on the northern side of the road. Here the forest reaches the water's edge but with mud between the trees in places. Mostly fungi collected here. Upper pond estimated 430 m lower pond 370. Tunnel Camp R R Station 300 m.

Dec 14-24 returned to San Jose overhauled and identified specimens

Dec 25. Mr Iglesias for lunch, Valerio called to discuss arrangements for trap.

Dec 26 Took 8 AM train to Sto Domingo where Valerio met us and provided horses. + Remo Valerio his brother Took road to San Luis, thence up to farm house (unoccupied) of Dr. Martin Zamora at foot of Cerro Central de Juncu at 1520 m. It rained while we lunched. Ramalina

*Theloschistes* + *Stereocaulon* were common on roadsides the two former on tree fence posts the latter on the banks

After lunch we botanized in potreros to north + east of house to about 1600 m when it rained hard + <sup>we</sup> returned. Wind blew continuously from north east sometimes quite violently.

Dec 27. Climbed up past next farm house to cerro along wooded ridge to 1700 m + returned by trail thru potreros on south slope. Many interesting things but almost too dry for fungi.  
After lunch left finca Zamora at 2 PM arriving at Domingo at 4:55 PM took auto to S. Jose about 6 PM.

Dec 28. Worked at field notes on fleshy fungi all day.

Dec 29 to Jan 7. Worked at specimens except Jan 3 when we moved to house of Dr. Rafael Alvarado.

Jan 8, 1930 Took the morning train to El Alto, then over the west side of the former Laguna de Ochomogo where the republican forces were encamped in the famous battle. From the battle cross we followed a little used cart road until it lost itself. We went mostly in potress, over the shoulder to the west of the high bare peak near the railroad, on to the second peak bare to the eastward but wooded to the top on the west side 1740m. Here we ate lunch looking up the valley of Rio Grande. after lunch we descended into the valley visited Oct 25 + Nov 1 along shoulders + abandoned road at gate at head of valley before the road starts zigzag. Returned down this valley road to Tres Rios. Rev. Ralph Brydges Am. (Columbia) the pastor of the P. E. church of San Jose went with us. Stephen saw a toucan at about 1600m.

Jan 9. Day spent in preparations for the trip to Guanacaste

Jan 10. Took 9 AM train for Puntarenas while the descent is approximately 4% all the way to the coast, for a long time we went down the gentle slope of the valley of San Jose then we began to wind down thru the Rio Grande ~~de~~ canyon. Such at Rio Grande de Tarcoles consisted of tortillas and omelette of the flowers of yucca elephantopus. Met Manuel Valeris on the train. Stayed at grand Hotel Europa <sup>near</sup> the wharf for lanchas. Went for a swim in the evening \$1.50 for bathing suit, towel etc.

Jan 11. Rose at 4<sup>30</sup> took the lancha at 6 for Bebedero. The boat has to go around the city to avoid shallows before starting toward the mouth of the Tempisque. The islands are very attractive. As we approached the mouth of the river we noted the

limestone formations. Don Anastasio says that the Cerros de Santa Catalina are predominantly limestone which is used for burning in some places. We stopped at El Coyolar + El ~~Saltos~~ Escobos. The upper part of the river is narrow but very picturesque. We scraped a bar just below the town as we were a little late, and the tide had started out about 30-45 cm. The quartermaster was a very interesting Indian very alert yet talkative. We landed at Bebedero and after stowing our baggage in the truck, we went to Liberia by auto. We stopped just beyond the farmhouse at Hacienda Mojica to change tire and I collected some pyrenomyces. At 100 m near Agua Caliente we stopped again. At Bagaces we stopped for frescos pinolio taste (a drink of parched corn, cocoa and water + sugar, stirred by a molinillo. It was served in jícaras, a cup carved from the fruit of the jícaro which is borne on mature wood as are the cacao pods.

The población seems pure indian, dishes mostly of vegetable origin i.e. gourds, jicaras etc. The tables in the kitchen have hollows to set rounded bottoms in, and carvings very good. House of adobe and heavy lattice construction. Furniture slightly heavy but very artistic in design. Seats loosely woven of thongs or sheets of leather with hair side down. Parlor furniture imported from San José.

The road mostly unfenced crosses the plain in more less straight lines with bridges over the streams but no traces of pavement. The country has a somewhat xerophytic appearance, rock often near surface of soft white fine grained sandstone.

Jan 12. A day of rest visits etc.

Jan 13. Dr. Don Oton Jimenez Lathimer went to La Cruz this morning. We went to Sobrado's house shortly after breakfast where we were

were joined by Don Anastasio Alfaro  
and his grandson Carlosito Herrera Alfaro. We followed  
Ave Central to the church then across an open  
field to the camp de jígar and northeasterly along  
the general line of the Rio Siberia and the  
cacería to a deep brook? where the cacería crossed  
it and returned. Photographed Acacia  
conigera? and a bright red flower.  
Very few mosses, fruticose or foliose lichens  
Selaginellas all dead, soil very dry & hard.  
Landscape similar to R.I. or Plymouth Mass. in  
fall as leaves are beginning to fall. Thelyphor-  
aceae, Polyporaceae, leaf fungi and crustose  
lichens abundant.

Jan. 14 Went with Carlos Herrera A.  
along road to Santa Maria. Passed swim-  
ming hole and tree with several howler  
monkeys, crossed stream passed a little  
beyond Finca La Careta and turned  
north on a little traveled road.  
After following this we returned to main

road and followed it a little farther. Found a stalked puff ball and miscellaneous other things.

Jan 15 Followed the Rio Liberia about 5 km to southwest of Liberia. It flows in a channel of soft <sup>white</sup> Sandstone with potholes, and deep inviting swimming pools and wash tubs. The banks have a few dried Selaginellas and hepaticae, while the water contains a short sterile aquatic moss. Searched carefully for Podostemonaceae but found none. From the top of the bank the land is level nearly as far as the eye can see.

La Vieja Santa Maria & Miravalles were completely visible.

Jan 16. Followed Bagaces road to fork south of city then turned along western fork a few hundred yards. Returned to Liberia in time to take care of specimens

before lunch. After siesta took horses and rode to Hacienda Santa Maria the property of sons of Federico Sobrado usually occupied by Antonio Sobrado. The party consisted of Oton & Matilda <sup>Alfaro</sup> Jimenez L, Dra. Isabel <sup>Alfaro</sup> de Herrera and son Carlos Herrera. Alfaro and ourselves. The road follows the height of land between Rio Siberia and next to northwest? Near Liberia The land is very dry rolling with little hills and sparsely covered with trees at times canons with ~~trees~~ steep sides and interesting talus are seen on the northwest. As the higher elevations are reached the grass is closer and greener the landscape looks less dusty. The sunset was gorgeous. The last hour was after dark. 4 hrs from Liberia We ate our evening meal and immediately went to bed. House is 720m above sea level.

Jan 17. Ascended hill back of house  
720 - 850 m and returned thru abandoned  
cafetal and cafetal. The woods are thick  
but not difficult going, quite moist still  
too dark for esp. lichens, epiphytes not  
abundant except on a few large old trees  
Hymenochaete + polypores abundant.  
Stephen, Carlitos, + Manuelito went for a  
ride to an azufral immediately after  
lunch. After siesta + tiste everyone  
went to visit the source of the  
Rio Liberia? where it gushes from a  
steep hillside as a fully formed  
brook. A portion of the stream is  
led along the hillside to the house.  
Black flies (mosquitos) were very bad and  
Bertha + I returned before the others.

Jan 18. We followed a small herd of  
steers which were driven to Las Delicias  
for bathing against ticks. While Bertha  
secured pictures of the process, Stephen

and I visited a small gorge north of the house and went over to the edge of the canon but as its sides very very steep we did not attempt to descend into it.

House at Las Delicias is 420 m. collecting probably 380 - 400 m but no readings taken. We returned for lunch at 1:30 P.M. A hard cold has been developing since we left Siberia so I stayed in bed the rest of the day. Stephen has been improving his time with ~~the~~ <sup>the</sup> Señorita Matilda Jimenez in Spanish conversation.

Jan. 19. Cold little better. all but Bertha & I returned to Siberia, Stephen to bring up driers Monday. I stayed in bed until lunch.

Jan 20. Cold somewhat better. Rained hard until late afternoon shortly before Stephen arrived Put away collections of 17th & 18th.

Jan 21. Rainy morning. Finished caring for specimens. Stephen started alone for more before it stopped raining mostly in potrero below platanal. Brought ~~the~~ back a large collection. Bertha + I collected coffee diseases and lichens in cafetal. We put away specimens after lunch then went for a walk in woods near fuente de Rio Siberia in late afternoon with Pablito. Got crustose lichens and a few interesting things in other groups. Saw a *Septoria* too old + distorted to collect. As weather has cleared barometer has fallen until house at 5PM reads 780 instead of 720 as earlier while it was raining still more or less windy.

Jan 22. Very rainy morning. Stephen went out alone, got some things and killed a snake. I helped him skin the snake then Bertha + I went for a walk in the potrero.

Jan 23. Still rainy this morning but Stephen, Bertha & I went up the hill north of the brook by the house, climbing a long gentle slope thru more or less open woods to about 920m [House 720m] we kept a little too far north and came out just above the sulphur springs and skirted along the edge of the jungle for some distance

Jan 24 Rained all forenoon. Changed presses in afternoon and went to forest southeast of house for about three hours. Trees mostly small, growth thick branches mostly on one side due to prevailing winds. Best lichens on trees in shallow ravines altho fruticose lichens absent and foliose closely appressed. altitude 680m.

Jan. 25. Changed presses and wrote during the morning. Stephen spent the afternoon in the potreros south to southwest of the house. Bertha & I collected along the Rio Siberia from bridges about 680 m to about 640 m. Got many interesting lichens and a tiny yellow flower with scale leaves in a boggy place near the brook. *Utricularia*? *Bromus*?

Jan 26 Very rainy all day. Prepared specimens for return to Siberia

Jan 27. Returned to Siberia, lost hat, face sunburned.

Jan 28 Answered some 20 letters. Fiestas opened with fireworks, parade of bulls, etc. Coronation of queens in evening

Jan 29 Futbol game in morning, bull riding in afternoon, dance in the evening

Jan 30. Wrote letters in morning, bull riding in afternoon

Jan 31. Cared for specimens in morning after lunch prepared baggage for trip to

Hacienda Tempisque. Don Oton Jimenez S. wilfully violated for every able bodied man to appear on horseback for the parade of the bulls and in the streets shortly thereafter.

He paid the fine willingly thru dona Sofia de Guillen but lost prestige thereby. As the camion drove up to the hotel it met a second party of horsemen and bumped into a horse. The chofer abandoned the camion, a drunk with a horsewhip started for Oton when the police appeared and calmed further demonstrations. Oton was badly frightened, the women quiet and a friend left his horse drove around to the ~~o~~ cuartel explained to the police and started for the western gate, then refused to go further. Sr don Rafael Rivera was hailed and drove off at a breakneck speed for several miles until we left behind a hostile group of horsemen who started to pursue us. The quick thinking of the men who drove the camion the skill of don Rafael in handling the camion over the rough road, the effluent police

the stolidity of the guanacastecos prevented a serious delay at least. I hate to think what a group of cultured American college men without alcohol might have done to Oton in similar circumstances.

The road descends the Guanacaste plain were gently to the Tempisque river and follows the west bank to a short distance below Palmira. We halted <sup>in El Paso</sup> opposite the farm descended to the River where a group of peons were ferrying sugar across from oxcart to oxcart in bongos. Most of the men wore very ragged trousers which had been cut off about half way between grom + knee and those completely naked hid their genitalia below the side of the boat until one of their number <sup>wade</sup> could across and return with some shirt which they used for aprons or breech cloths. Apparently the men + boys work frequently with only the short trousers for when they were swimming in nature their outtocks and upper thighs were so much lighter than the rest

of their bodies that unless one saw the black pubic hair one would think they had thin white or pink bathing trunks on.

We crossed with Elou in the attitude of the famous picture of Washington crossing the Delaware arrived without further incident.

Feb 1 We visited the sugar factory, the plantation of cane for cuttings and spent the rest of the morning discussing agricultural problems. The afternoon along the Rio Tempisque. In the afternoon Stephen and I collected down river on the west bank but found little. Men <sup>and boys</sup> were bathing and natried in all the deeper places. The physiques were splendid. In fact the Guanacastecos are uniformly much better developed physically than <sup>in</sup> any other part of Costa Rica which I have seen. Malnutrition not seen except in children of A.S. While enlarged thyroids are general in C.R. symptoms of thyroid disturbance are rare. Two or three cases of hypothyroidism observed in Siberia.

Owing to the necessity for riding the men rich and poor have powerful bodies but a tendency to bowed legs, while on the meseta the poor are undernourished and the rich overnourished and <sup>appear</sup> aged by excessive venery.

Feb 2. Rested in forenoon returned to Liberia in afternoon. We had a flat tire <sup>a little</sup> just after we left Buenos Aires so I had a chance to collect some crustose lichens and to enjoy a drink from a Bejuco de agua

Shortly after afterward while crossing the Llano Grande ~~to~~ don Antonio Sobrado caught a medium sized armadillo for Stephen. The farm where the road crosses the Rio Siberia is Ita Ana (pronounced Sant'ana) Oton gave the young blades a piece of his mind after supper calling them immoral savages etc. which did not raise him in their esteem nor ours.

Feb 3. Oton left for Nicoya early this morning. I took care of specimens and Stephen worked at his iguana skin. Arranged to have

boxes made to ship specimens

Feb 4. Went southwest along river this morning. Afternoon spent at potholes just below first bridge west of city gate on road to Buenos Aires got many interesting aquatics (algae + insects).

Feb 5. Followed road north of Siberia past cemetery to first stream which was dry. Followed this westward for some distance and returned. Stephen got some bats. Country very dry and dusty little botanical material available.

Feb 6. Stayed around hotel much of day expecting to go north to look at coffee diseases but man who was to take me did not show up. Stephen worked at catching bats. Decided to leave Siberia Saturday in man does not come tomorrow. Feb 7 visited locality of Feb 5. Bertha took film of young zopilotes. I got a few more

crustose lichens. Packed in afternoon

Feb. 8. Took camión to Bebedero leaving Liberia at 4. Bertha returned to San José. Stephen & I took camión to Las Cañas arriving about 12<sup>30</sup> P.M. Stayed at hotel of Rafael (Cabito) Briceño. Overhauled baggage after long siesta

Feb 9. Collected northeast of Las Cañas along road to Tilaran in morning. Read in afternoon and evening prayer after dinner. Went to bed early

Feb 10. Left Las Cañas 8<sup>30</sup> arrived in Sibano about 11 then a little south of gold mine turned sharply uphill to finca of Robert ~~Hawke~~<sup>Hancock</sup>, a descendant of Pennsylvania Dutch family who moved to South Carolina as P.E. minister. Father purchasing agent of Confederacy in Germany, settled in England after the

Rebellion, married an English wife. Our host spent 4 years in Santa Fe and Tucuman Argentina as a railroad engineer 1884-88, since then practised his profession in Costa Rica, having surveyed much between Tenorio & Miramar. Settled present finca (principally coffee some sugarcane and a little rice) about 13 years ago. Finca lies between Rio Las Cañas & R. San José with Cerro de San José to south and Cerro Pelado visible at the north west. Coffee grown by st cleaning underbrush & slowly thinning some of natural shade. Wind strain too great to grow coffee without mature shade. and guinea grass grows too rapidly to allow reforestation without <sup>much</sup> ~~some~~ cultivation. Lacks proper beneficio for preparation of coffee for export and bottom has fallen out of local market so price is only half of which what it was last year, and so there will be a deficit instead of profit. Coffee seedlings grown very close in forest to save cultiva

tion + cleaning. Plantation quite free from disease, but some killed by gophers, a few by aphids about collar as at Pejivalle. In spite of fairly dense shade very little Stilbella.

Date palms produce suckers but seem to have mottled leaves (scale or Graphiola?) and have not flowered much yet. Rosaceous fruits have mostly been killed by insects. Our host knows trees very well, many by native names.

The landscapes remind me very strongly of scenes in the upper part of the Black River valley in Vermont in late May.

Spent afternoon in rapid survey of cafetal. Found mushroom in much decayed bagasse + soil back of trapiche. Farm called La Granadilla.

Feb 11. Took care of specimens in morning. I climbed the hill south of house then worked south easterly, coming out into potrero east of house + returned in time for lunch. Stephen botanized canal to northwest of house returning a little later. We took care of specimens

during heat of day just after lunch. In afternoon spent some time on huge fallen tree on edge of yucal not far from cafetal. Picked up a few specimens in cafetal

Feb 12 Worked in jungle between cafetal & Rio Las Canas in morning. In afternoon botanized southwest slope of Rio San José

Feb 13 descended into upper part of canon of Rio San José on northern bank. found a fallen <sup>pochote</sup> *Bombacopsis* ~~Ficus~~ <sup>creptans</sup> having several species of orchids & many crustose lichens I had fallen too recently to have fungi

Feb 14 Took pictures & collected in cafetal in morning. <sup>In the afternoon</sup> Stephen went to next farm south east then <sup>north</sup> up to edge of R Canas followed jungle west for some distance. I discussed various engineering & economic topics with Mr Hankel, corrected map, changed driers & prepared bundle of dry specimens to

send to Las Cañas. Planned ascent of Cerro de San José.

Feb 15. Climbed Cerro de San José (de Libano) started about eight being joined by the neighbor next above on R San José, Constantino Medrano. Cerro de San José lies S 30° E and ~~463~~ 4350 m away. My barometer read 960 m that of Mr Hanckel 3380 ft. My reading of the house checks quite closely with the observed angle to the top of the Cerro.

We climbed a ravine near Medrano's house to south west bank of R. Las Cañas (or rather the long scarp-like wall separating the R. Las Cañas from the R. San José.) We followed this ridge up to the last steep grade through a very interesting forest where we saw many flowers not noticed previously. The steep slope is grass land probably the result of a grass fire sweeping up the se. slope. <sup>Most</sup> ~~some~~ of the grass had been burned this season.

but a few lichens, orchids and one legume were found in the crevices of the rock in the unburned area. The rock is

weathering as if stratified with the dip S 70 W slope 40°. therefore the eastern slope is even steeper than the western which follows approximately the dip of the strata. we did not visit the lower peak. <sup>main</sup> This peak about on a level with the cordillera opposite commands a view from Puntarenas to the Nicaraguan border and west to the coast range on the Pacific

Feb 16. Left La Granadilla about 10 climbed about 600 m <sup>near</sup> to edge of R. Canas along Hancalo's <sup>south</sup> easterly line then descended by steep zigzag to R. Las Canas 350 m then up other bank by gentler slopes to 660 m then across undulating plateau past Quebrada grande then down into a deep valley across more hills into the valley of Quebrada ~~Agua~~ where is located the Hacienda Sombardia

of Sr don Alberto Fait. Hence up the hill to the plateau where Tulaian is located at 470 m. 500 m.

Feb 17. Descended N 70W into the valley to 340-360 m on the finca de Calderón and found several interesting things. Spent all afternoon changing driers + putting things into press. Wind high but sunny.

Feb 18. High wind and rain in early morning. Much difficulty in getting horses as we had planned to go to Buena Vista with relative of Fait in Lombardia. Sr don Antonio Gutiérrez came up like a deus ex machina and solved the difficulty by taking us to <sup>H.</sup> Quebrada Azul to the north of the town. After lunch a peón accompanied us to the forests about N 10W of Cerro San José altitude 500-600 m. Farmhouse about 400 m on lower slopes of Tenorio not far from Continental divide.

Returned to Tilarán about 4:30 and got our driers partly dried.

Feb <sup>19</sup> ~~20~~. Presses full and needed attention all morning I followed road north of village toward Quebrada Agul as far as first large brook, which I followed to swimming hole at head of gorge and botanized woods on north side Stephen went out later when driers were done and worked toward hill southwest of village.

Feb 20. Attended to presses in forenoon after lunch took road leading north east from Tilarán crossing continental divide at 690 m. just before the divide was reached lichens became larger + better fruited We descended Atlantic slope to first large brook which crosses the road at 650 m. Returned + cared for specimens Watched dona *Ninfa Garrote* get honey

from her hives. The hollow log containing the stingless honey bees was placed on the table the large irregular black combs punctured and the contents allowed to flow into containers.

Feb 21 Returned to Las Cañas, prepared baggage for shipment. In evening met Sr don Gutierrez, the proprietor of the botica & Monseñor Suís Suitpold a german priest who has been in Cañas 30 years & in Costa Rica 33.

Feb 22. Cannon to Bebedero. Met don Suís Ariasson of Arias (Imprenta Alsina. Also Mr Nils Claussen of La Mil Flor in San José and Herr Kleefeld a collector of live birds mammals & reptiles for zoological gardens.

Feb 23. Left for Puntarenas at midnight arriving about 5 A.M. Took a walk along north shore & watched sunrise. On train met Mr & Mrs Coleman of Sto Domingo de Sta Barbara with a finca on the north slope of Barba and had a very interesting conversation also Dr don Eduardo Fernandez proprietor of the grocery La India

Feb 24 Worked at Income Tax & correspondence  
called on Mr Neermann in evening  
Feb 25-28 worked at specimens etc

Mar 1. Took 9 A.M. train for Eladio to call on Mr. Sanksterat Las Concavas. Had a pleasant visit & walked back to Cartago for the 15<sup>55</sup> train to San José. Picked up some interesting fruticose lichens on my way back. Stephen worked at specimens

March 3 Took 11 AM train to Cartago to home of Philip Byrd whence we departed for the finca of Robert at about 2700 m on south eastern slope of Irazu. We arrived at 6 PM and were given permission to sleep in the silo

March 4 After a warm stuffy night we started about  $4^{\circ} 30$  for the crater. The heavy dew on the subalpine vegetation along with the gnarled trunks made a very ghastly appearance. Most of the plants are increasingly covered with dust as the crater is approached. Eichens disappear completely at about 2900 and are very rare and depauperate down to 2800 or less.

March 5-8 Days spent in sorting and studying specimens

Mar 9-11. Finished specimens.

March 12. Took morning train to Cartago  
walked slightly east of south to Aqua Caliente  
and around up hill in same general direction  
to a point 1460 m. Aqua Caliente about  
1240 m. Returned in time for 3<sup>10</sup> PM train  
Usnea Ramalina, Anaptychia abundant  
and several cladomas on roadside  
south of Aquacaliente.

March 13-15 Packed boxes for shipment  
made calls etc.

March 17. Took caboose of 6<sup>30</sup> freight  
to Turrucares walked north up over rise  
and descended to R. Siquiares <sup>at 540 m</sup> botanized  
on north slope to 600 m. The guana-  
casti was abundant and conspicuous  
Returned on the 1 PM train from Puntarenas  
Country very dry.

March 18 Shipped specimens and  
Stephen's baggage.

March 19. Morning train to Limon  
Called on Hendricksons in late P.M.

March 20. Collected algae on first  
point toward <sup>Pinta</sup> Moin from Unfructo  
hospital. <sup>coral reef</sup> Spent afternoon & evening  
caring for them.

March 21 Worked at algae in morning  
visited cacao drying plant and collect  
ed a few things washed ashore on the  
sandy beach south of mouth of Limon  
river

March 22 Visited Dr. Salisbury and  
discussed pinta & mossy foot. Thomas  
went to Zent and sailed later on SS Tolosa.  
Bertha & I returned to San Jose.

Mar 23 Sunday attended church & later  
opening of art exhibition.

March 24, 25 Cared for & sorted algae  
made a few calls. Anne has attack  
of indigestion

March 26. Took 9 A.M. train to Sigunies  
with Mr. Nevermann, changed to Cairo  
branch which descends along the  
Rio Reventazon to golden grove. Here we  
took tramway to Castilla farm  
which Mr. Nevermann manages. Walked  
north into bananas along river and  
returned about 5 P.M. House situated on w.  
bank of Reventazon.

March 27 Spent forenoon in jungle  
west of house in Castilla and afternoon  
in caring for specimens. In evening  
finished field notes on agaricaceae  
and worked on insects.

March 28. Spent forenoon in jungle west of tramline in Soo Negritos the next farm south of Castilla and afternoon in caring for specimens saw beautiful Hiatula with ring suffered from "red bugs" a tiny scarlet which irritates skin at roots of hairs.

Mar 29 after breakfast took tram to point opposite house at Hamburg crossing Rio Reventazon in canoa. later went by tram to Carmen Commissary took train to <sup>at Agua Fria</sup> where got two bottles algae end of line and took another train to Marta farm where I collected in jungle back of house before lunch and in banana patch afterward. Returned as we went except walked where we had ridden before. <sup>train</sup> Spent evening papering *lepidoptera* etc.

Mar 30. For trip of Bertha W Dodge to Volcan Poas see p. 85 this volume

Mar 30 Spent day in caring for specimens  
drying driers etc. At dusk we started  
for jungle on trail used Mar 27. We  
wore headlights and carried two mantle  
gasoline lantern which we hung up  
in a suitable place in the jungle. We  
then followed the trail collecting in-  
sects for some distance. Cockroaches  
abundant orthoptera quite so, some  
beetles, numerous individuals of one  
or two species of wasps especially  
at the light, small luminous spiders  
and large prowling ones with the  
forelegs much different from the others  
legs. The prowling leaf like orthoptera  
apparently make little use of their form  
for hiding at night. Pachytetes yielded  
four species, all heavily infected with  
large Labourbenaceae. They apparently  
live in soil a foot of trees during day and  
crawl up at night being low in early  
evening and high later on.

Mar 31. Went to Hamburg Farm by same route as on Mar 29. collected in young banana + edge of jungle in forenoon had a good look at a small Central American bear and got some insects.

In afternoon collected in jungle + ridge near house in general direction of Cadiz farm. Rich log which yielded the curious *Callirhipis brasiliensis* in larva, pupa and adults of both sexes. The males have curious long whisker like antennae which they carry under them in their long tunnels in the hard wood and when resting when walking outside they spread and extend them before. We also found small *Passalus* and larva in rottener portion of log.

Got a few lichens in vicinity of house. Saw several species of *Vanilla* in bloom in corner of banana between Cadiz + Hamburg Evening in caring for insect collection

April 1. Rainy all day. cared for specimens  
sorted insects and caught up journal

April 2. Finished caring for specimens in  
morning, had early lunch, and took a  
big circle in the palm swamp between  
Río Parusmina + R. Reventazon on  
Castilla farm. got several agarics etc  
on decayed palm fronds and collected  
a few other things.

In evening collected over ground of  
Mar 30 searching for *Pachytelus* spp. which  
are heavily infested with *Laboulbeniaceae*.  
Cockroaches were rarer. crickets more  
abundant. Mr Neumann got a very  
curious grasshopper with markings  
suggesting lichens, also single individual  
of 3 very rare longisome

Apr. 3 Rain in morning. Spent day caring for specimens. Evening visited recent clearing of small swamp near main tram line in Los Negritos. Mostly Cecropia. got a few small things and *Brenthia* sp. As the light attracted practically nothing but *Anomala* (?) *brimaculata* we moved it to clearing near edge of jungle on trail visited Mar 28. No *Pachyteleles* but a few showy longicorns and many individuals of a few Orthoptera, as well as small things got a few lichens and a red-flowered *Theobroma*

Returned about 11 P.M. Trails less well defined & as they were cleared for taking out logs hence very difficult to follow and some of the interesting portions of the trail were not feasible

April 4. Sunny. Dried driers + papered insects in early morning then took mule car to point about opposite Cadiz dwelling. Struck into hills (20 m high +) along trail leaving tram  $\frac{2}{3}$  way between Cadiz + Hamburg but along west bank of Rio Reventazon. Circled for two hours to northeastward, coming out along lagoon a little below Hamburg. Struck in again on south side of same hill and came out in another two hours about opposite Cadiz dwelling where we took tram back to Castilla. Spent rest of day + evening caring for specimens + packing in order to get early start for Waldeck. Fern like grass chase

conspicuous, a few tiny agarics and very few lichens. *Nanosella* 270  $\mu$  long 70  $\mu$  wide (smallest beetle known) very abundant on *Polystictus haedinus*? larvae, copulating pairs etc. Beetles few + not striking.

Apr 5. Collected where Monte Cristo train meets railroad and again in cacao groves opposite Carmen commissary arrived at Waldeck in afternoon on plow car train.

April 6 Collected where Waldeck train line crosses Rio Madre de Dios mostly in thicket of cana brava then went to virgin forest at northeast portion of farm got many nests etc of things which took to  $10^{30}$  gm. to care for. Neumann took evening trip to cacao grove April 7. Overhauled press, collected along north bank of Rio Madre de Dios west of main train bridge mostly in cana brava. Spent rest of morning on recently felled tree in partially cleared forest.

In evening returned to same loca-  
t. Beetles abundant also large black  
Empipteron other groups rare very  
few roaches & crickets. Caught a Rhene  
carbostris on dicot leaves apparently  
resting as it was very sluggish &  
different from movements of this species  
during the day. Brentidae & longicorn  
abundant

Apr 8. Returned to end of tram line  
at bridge over Cimarrones, <sup>river</sup>  
and followed edge of a scrubbed area  
(approximately, straight west) to bananas  
at laguna on Monte Verde farm following  
east bank of laguna southward  
for about an hour and a quarter on  
fairly clear trail. Collected many  
specimens of several species of  
Coleoptera, one of the scarabat  
group, a few beetles, a conspicuous  
beetle and a few *Sphecodes* wasp

April 8 went to San Jose at night.  
 and after dark the station being  
 in a state of darkness - so we were not  
 able to get a good view of the forest  
 could not catch a single or strike  
 a light - argued useless. So I made to  
 near where made a fire & sat in a  
 stream of light & live. Reached home  
 at three, bathed and wrote a garic  
~~but not until 9:30~~

April 9. Returned to San Jose, visiting  
 Mr Catt at the Squires Experiment  
 Station between trains

April 10 Overhauled presses and sorted  
 specimens

April 11 Spent day in catching up  
 correspondence

April 12, 14-18 in San Jose

March 29 - Took train from San José to Alajuela and cannon from Alajuela to San Rafael de Poas. Walked about a mile from end of cannon line to house of Miss Vargas' cousin's husband, Juan Bautista. Slept there.

March 30. Arose at 1:30 A.M. - breakfasted - started from finca before three. Rode for over two hours in the dark, arriving at Lechénia at dawn. Climbed up arriving at "Hotel" on the potras del Volcán at about ~~six~~ <sup>one</sup> thirty. This potras is obviously the filled in floor of an extinct crater as it is a level circular spot surrounded on all sides by <sup>wooded</sup> <sup>There were long frost crystals there in the early morning</sup> rim. We arrived at Crater rim at seven o'clock. Vegetation extends to the very rim - trees practically all the way from Lechénia up. The bottom of the crater

may be seen quite clearly from the rim (when there are no clouds). Boiling steaming sulphur makes a splendid sight.

The laguna is only a short distance away, perhaps ten minutes' walk.

Collected ~~near~~ laguna and from crater's rim down to lechuna. Walked all the way as my reactory steed had refused to go all the way up and had been tethered a short way above the lechuna.

Many lichens - chiefly cladonia. The upper levels are quite moist, even at this season. Some fungi

arrived back at San Rafael at about one o'clock.



676 S 30E

4350

contangle to high peak 5340

Max field 42 bu of maize

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